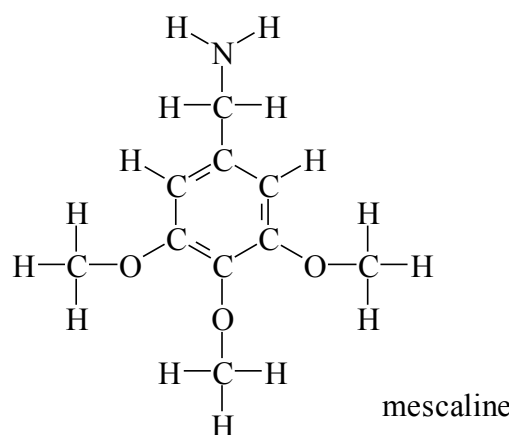
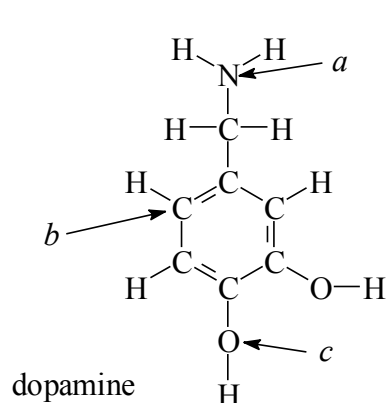


**Marks**  
**6**

- The structures of dopamine and mescaline are given below.



Dopamine is involved in the transmission of nerve impulses in the brain. Complete the Lewis structure for dopamine by including all lone pair electrons.

How many  $\pi$  electrons are there in dopamine?

Predict the bond angles at the points labelled *a*, *b*, and *c* in dopamine.

*a*

*b*

*c*


Mescaline is an hallucinogenic compound found in the peyote cactus. Suggest a reason for the ability mescaline to disrupt nerve impulses.

Which compound, dopamine or mescaline, has the higher solubility in water? Give reasons for your answer.